CITY OF ALBUQUERQUE

Planning Department Alan Varela, Director



Mayor Timothy M. Keller

March 22, 2022

Fred C. Arfman, P.E. Isaacson & Arfman, P.A. 128 Monroe St. N.E Albuquerque, NM 87108

RE: American Self Storage – Paving Expansion 720 Candelaria Road NE Grading & Drainage Plan Engineer's Stamp Date: 01/18/22 Hydrology File: H15D069

Dear Mr. Arfman:

PO Box 1293 Based upon the information provided in your submittal received 01/18/2022, the Grading & Drainage Plan is approved for Grading Permit and Paving Permit.

Albuquerque As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Dough Hughes, PE, <u>jhughes@cabq.gov</u>, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or <u>rbrissette@cabq.gov</u>.

www.cabq.gov

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM Senior Engineer, Hydrology Planning Department



City of Albuquerque

Planning Department Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 11/2018)

American Self Storage Project Title: Paving Expansion	Building Permit #:	Hydrology File #: H15
DRB#:	EPC#:	Work Order#:
Legal Description: <u>A Portion of Tract 1A</u>	-1A, Mueller Industrial	
City Address: <u>720 Candelaria Road NE</u>		
Applicant: Isaacson & Arfman, Inc. Address: 128 Monroe Street NE - Alb	uquerque, NM 87108	Contact: Fred C. Arfman
Phone#: (505) 268-8828	Fax#:	E-mail: freda@iacivil.com
Owner: Storage Enterprise, LLC Address:		Contact: Vic Mahoney
Phone#:	Fax#:	E-mail:
Check all that Apply: TYPE OF SUBMITTAL: ENGINEER/ARCHITECT CERTIFICATIO PAD CERTIFICATION CONCEPTUAL G & D PLAN X GRADING PLAN DRAINAGE MASTER PLAN DRAINAGE REPORT	TYPE OF BUII ONCER PRE SITE SITE FIN/ SIA/	APPROVAL/ACCEPTANCE SOUGHT: LDING PERMIT APPROVAL TIFICATE OF OCCUPANCY LIMINARY PLAT APPROVAL E PLAN FOR SUB'D APPROVAL E PLAN FOR BLDG. PERMIT APPROVAL AL PLAT APPROVAL RELEASE OF FINANCIAL GUARANTEE
FLOODPLAIN DEVELOPMENT PERMIT ELEVATION CERTIFICATE CLOMR/LOMR TRAFFIC CIRCULATION LAYOUT (TC TRAFFIC IMPACT STUDY (TIS) OTHER (SPECIFY) PRE-DESIGN MEETING?	`APPLIC FOU X GRA SO-1 SO-1 L) X PAV GRA GRA WOF CLO FLO OTH	NDATION PERMIT APPROVAL DING PERMIT APPROVAL 9 APPROVAL ING PERMIT APPROVAL DING/ PAD CERTIFICATION & ORDER APPROVAL MR/LOMR ODPLAIN DEVELOPMENT PERMIT ER (SPECIFY)

DATE SUBMITTED: January 18, 2022 By: Fred C. Arfman

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED:

FEE PAID:



128 Monroe Street NE Albuquerque, NM 87108 505-268-8828 | www.iacivil.com

March 17, 2022

Mr. Jim Garcia RJ Enterprise Investments, LLC 820 Candelaria Blvd. NE Albuquerque, NM 87110

Re: American Storage Improvements

Dear Mr. Garcia,

Isaacson & Arfman, Inc. is the civil consultant for the owner of the American Storage site at 720 Candelaria, due west of your property. We conducted a field review of the proposed improvements with you that included a discussion of the location and function of the storm water drainage detention pond located at the southwest corner of your property.

The City of Albuquerque – Hydrology group is requiring a letter from you that states that you are in agreement with the location of the drainage improvements to be constructed as part of the American Storage expansion. We are hereby request your signature and date in the signature block found below that acknowledges your previous verbal acceptance of the pond being located on your property. Please return the signed letter to our office.

Please call if there are any questions on this request and we appreciate your cooperation on this matter.

Sincerely, Isaacson & Arfman, Inc.

Fred C. Arfman, PE

Acknowledgement:

im J Garcia 03/21/22 Jim Garcia, Owner Date 820 Candelaria Blvd.

JANUARY 18, 2022

SUPPLEMENTAL CALCULATIONS

FOR

AMERICAN SELF STORAGE PAVING EXPANSION

ALBUQUERQUE, NEW MEXICO

PREPARED BY





128 Monroe Street NE Albuquerque, NM 87108 505-268-8828 | www.iacivil.com I&A Project No. 2431

LIST OF CONTENT:

- 1. VICINITY MAP/BASIN MAP
- 2. DRAINAGE CONCEPT
- 3. NOAA ATLAS 14 PRECIPITATION TABLE
- 4. AHYMO DATA
 - a. SUMMARY TABLE
 - **b.** OUTPUT FILE
- 5. POND CALCULATIONS



DRAINAGE CONCEPT

Under existing conditions the stormwaters from the undeveloped portion of Tract E-A-2 flow onto Tract 1A-1A. Runoff from these sites then sheet flow westward. The land treatment type for both areas is currently 100% C. AHYMO was used to calculate the historic runoff rate at 2.61 cfs for both basins. The runoff from the developed portion of Tract E-A-2 is captured in an existing inlet and 10 inch diameter Storm Drain that outflows southward into the Menaul School Water Detention Basin.

The owner of Tract E-A-2 has agreed to provide area for ponding and grading in order to eliminate Tract E-A-2 flows from passing through Tract 1A-1A. The proposed stormwater quality retention pond, inlet and storm drain will be installed to re-route Tract E-A-2 flows to the Menaul School Water Detention Basin as previously approved.

The proposed land treatment for the undeveloped portion of Tract 1A-1A (South Basin) is 100% D. the proposed land treatment for the undeveloped portion of tract E-A-2 (North Basin) is 15% C and 85% D. Under these conditions the developed runoff rate for the South Basin is 1.75 cfs and the developed runoff rate for the North Basin is 1.97 cfs.

It is proposed to build a stormwater quality retention pond at the southwest corner of Tract E-A-2 where runoff from the North Basin will enter a new 18 inch domed grate, which will tie into the existing 10 inch Storm Drain. This eliminates North Basin runoff from entering the South Basin. Therefore, the developed flowrate leaving the Tract 1A-1A is 1.75 cfs, which is less than the historic rate of 2.61 cfs.

Precipitation Frequency Data Server



TORR OF THE OWNER OWNER OF THE OWNER OWNER

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PD	S-based p	point prec	ipitation f	requency	estimates	with 90%	o confiden	ce interva	ıls (in inch	nes) ¹
Duration				Avera	ge recurren	ce interval (years)			
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	0.169	0.219	0.294	0.353	0.433	0.496	0.563	0.633	0.729	0.805
	(0.144-0.198)	(0.186-0.257)	(0.250-0.346)	(0.299-0.413)	(0.365-0.507)	(0.417-0.581)	(0.469-0.658)	(0.524-0.740)	(0.597-0.852)	(0.655-0.941)
10-min	0.257	0.333	0.447	0.537	0.659	0.755	0.857	0.964	1.11	1.23
	(0.220-0.302)	(0.283-0.391)	(0.381-0.526)	(0.455-0.629)	(0.555-0.772)	(0.634-0.884)	(0.713-1.00)	(0.797-1.13)	(0.908-1.30)	(0.997-1.43)
15-min	0.319	0.413	0.554	0.666	0.817	0.936	1.06	1.19	1.38	1.52
	(0.272-0.374)	(0.351-0.485)	(0.472-0.652)	(0.564-0.779)	(0.689-0.956)	(0.786-1.10)	(0.884-1.24)	(0.988-1.40)	(1.13-1.61)	(1.24-1.78)
30-min	0.429	0.556	0.747	0.896	1.10	1.26	1.43	1.61	1.85	2.05
	(0.367-0.504)	(0.473-0.653)	(0.635-0.878)	(0.759-1.05)	(0.927-1.29)	(1.06-1.48)	(1.19-1.67)	(1.33-1.88)	(1.52-2.17)	(1.67-2.39)
60-min	0.531	0.688	0.924	1.11	1.36	1.56	1.77	1.99	2.29	2.53
	(0.454-0.624)	(0.585-0.808)	(0.786-1.09)	(0.939-1.30)	(1.15-1.59)	(1.31-1.83)	(1.47-2.07)	(1.65-2.33)	(1.88-2.68)	(2.06-2.96)
2-hr	0.621	0.796	1.06	1.26	1.55	1.79	2.03	2.29	2.66	2.96
	(0.525-0.749)	(0.671-0.960)	(0.887-1.27)	(1.06-1.51)	(1.29-1.85)	(1.48-2.13)	(1.67-2.42)	(1.87-2.72)	(2.14-3.16)	(2.36-3.52)
3-hr	0.665	0.844	1.11	1.32	1.61	1.85	2.10	2.37	2.74	3.04
	(0.566-0.795)	(0.717-1.01)	(0.943-1.32)	(1.12-1.57)	(1.35-1.92)	(1.54-2.19)	(1.74-2.49)	(1.95-2.80)	(2.23-3.24)	(2.45-3.61)
6-hr	0.774	0.977	1.26	1.48	1.79	2.03	2.29	2.55	2.92	3.22
	(0.663-0.919)	(0.837-1.16)	(1.08-1.49)	(1.27-1.75)	(1.52-2.11)	(1.72-2.39)	(1.92-2.69)	(2.13-3.00)	(2.41-3.43)	(2.64-3.79)
12-hr	0.848	1.07	1.36	1.59	1.89	2.13	2.38	2.63	2.98	3.27
	(0.735-0.982)	(0.927-1.24)	(1.17-1.57)	(1.37-1.83)	(1.63-2.18)	(1.82-2.45)	(2.02-2.73)	(2.22-3.03)	(2.49-3.44)	(2.70-3.83)
24-hr	0.967	1.21	1.52	1.76	2.09	2.33	2.59	2.86	3.21	3.49
	(0.845-1.11)	(1.06-1.39)	(1.32-1.74)	(1.53-2.01)	(1.81-2.38)	(2.02-2.66)	(2.24-2.95)	(2.45-3.25)	(2.73-3.65)	(2.96-3.97)
2-day	1.00	1.26	1.57	1.81	2.14	2.39	2.65	2.91	3.25	3.52
	(0.882-1.14)	(1.10-1.43)	(1.38-1.77)	(1.59-2.04)	(1.87-2.41)	(2.08-2.70)	(2.30-2.99)	(2.51-3.29)	(2.80-3.68)	(3.02-3.99)
3-day	1.10	1.37	1.69	1.94	2.28	2.54	2.80	3.06	3.41	3.68
	(0.976-1.22)	(1.22-1.53)	(1.50-1.88)	(1.72-2.16)	(2.02-2.54)	(2.24-2.83)	(2.47-3.12)	(2.69-3.42)	(2.99-3.82)	(3.21-4.12)
4-day	1.19	1.47	1.80	2.07	2.42	2.69	2.95	3.22	3.58	3.84
	(1.07-1.31)	(1.33-1.63)	(1.62-1.99)	(1.86-2.28)	(2.17-2.67)	(2.41-2.96)	(2.64-3.26)	(2.87-3.56)	(3.18-3.96)	(3.40-4.26)
7-day	1.34	1.66	2.02	2.30	2.67	2.94	3.21	3.46	3.80	4.04
	(1.22-1.47)	(1.51-1.82)	(1.83-2.22)	(2.08-2.52)	(2.41-2.91)	(2.65-3.21)	(2.89-3.51)	(3.12-3.79)	(3.41-4.17)	(3.62-4.45)
10-day	1.48	1.83	2.25	2.56	2.98	3.30	3.61	3.92	4.32	4.61
	(1.35-1.62)	(1.67-2.01)	(2.05-2.45)	(2.34-2.80)	(2.72-3.25)	(2.99-3.59)	(3.27-3.94)	(3.54-4.28)	(3.89-4.72)	(4.13-5.05)
20-day	1.83	2.26	2.75	3.11	3.57	3.90	4.22	4.52	4.89	5.15
	(1.65-2.02)	(2.05-2.50)	(2.49-3.02)	(2.82-3.42)	(3.23-3.93)	(3.52-4.29)	(3.81-4.63)	(4.07-4.96)	(4.39-5.37)	(4.62-5.67)
30-day	2.19	2.71	3.25	3.65	4.15	4.51	4.84	5.15	5.52	5.78
	(1.98-2.39)	(2.45-2.95)	(2.95-3.55)	(3.31-3.98)	(3.76-4.51)	(4.07-4.89)	(4.37-5.26)	(4.64-5.60)	(4.97-6.01)	(5.19-6.29)
45-day	2.68	3.32	3.94	4.39	4.93	5.29	5.62	5.90	6.21	6.39
	(2.44-2.93)	(3.02-3.62)	(3.59-4.31)	(3.99-4.79)	(4.49-5.37)	(4.82-5.78)	(5.12-6.13)	(5.37-6.43)	(5.66-6.78)	(5.83-6.96)
60-day	3.08	3.80	4.52	5.03	5.65	6.07	6.45	6.78	7.15	7.37
	(2.81-3.37)	(3.47-4.16)	(4.13-4.94)	(4.60-5.51)	(5.17-6.17)	(5.55-6.63)	(5.90-7.05)	(6.21-7.42)	(6.55-7.83)	(6.77-8.07)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical







NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Mon Sep 20 20:36:50 2021

Back to Top

Maps & aerials

Small scale terrain

AHYMO PROGE	RAM SUMMARY TABLE (= M:\PROJECTS\2400	(AHYMO-)-2499\	S4) 2443\CA	ALCS\AHYMO\TR	- Ver ACT1A1A.DAT	. S4.01a, Rel	: 01a	RUN DATE USER NO.=	(MON/DAY AHYMO_Te	/YR) =11/ mp_User:2	16/2021 0122010
		FROM	то		PEAK	RUNOFF		TIME TO	CFS	PAGE	= 1
	HYDROGRAPH	ID	ID	AREA	DISCHARGE	VOLUME	RUNOFF	PEAK	PER		
COMMAND	IDENTIFICATION	NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS)	ACRE	NOTAT	ION
*S******	******	*****	******	*****	*****						
*S*******	*****	*****	******	******	*****						
START										TIME=	0.00
LOCATION		RIO	RANCHO								
RAINFALL	TYPE= 1 NOAA 2									RAIN6=	2.290
*S*******	*****	*****	******	******	*****						
*S SOUTH E	BASIN, HISTORIC										
COMPUTE NM	HYD 10.00	-	1	0.00066	1.20	0.034	0.97796	1.500	2.852	PER IMP=	0.00
*S SOUTH E	BASIN, PROPOSED										
COMPUTE NM	HYD 11.00	-	2	0.00066	1.75	0.071	2.03649	1.500	4.168	PER IMP=	100.00
*S NORTH E	BASIN, HISTORIC										
COMPUTE NM	HYD 103.00	-	3	0.00077	1.41	0.040	0.97796	1.500	2.848	PER IMP=	0.00
*S NORTH E	BASIN, PROPOSED										
COMPUTE NM	HYD 104.00	-	4	0.00077	1.97	0.078	1.87771	1.500	3.984	PER IMP=	85.00
*5~~~~~~	~~~~~ POND~	~~~~~	~~~~~~	~~~~~~~							
*S 18'	" DOMED GRATE										
*S	PIPE INVE	RT = 1	.7								
ROUTE RESER	RVOIR 120.00	4	20	0.00077	1.93	0.077	1.87740	1.533	3.898	AC-FT=	0.013
FINISH											

```
AHYMO PROGRAM (AHYMO-S4)
                                          - Version: S4.01a - Rel: 01a
        RUN DATE (MON/DAY/YR) = 11/16/2021
       START TIME (HR:MIN:SEC) = 15:13:12
                                          USER NO.= AHYMO Temp User:20122010
       INPUT FILE = M:\PROJECTS\2400-2499\2443\CALCS\AHYMO\TRACT1A1A.DAT
*
*
     2443 - AMERICAN SELF STORAGE - Paving Expansion - Tract 1A-1A
*
     August 2021 - SR
*
*
     PRECIPITATION FROM NOAA
*
     ALBUQUERQUE, NEW MEXICO (LAT: 35.1138 LONG:-106.6313)
*
         P15 =
                    1.06"
*
         P60 =
                    1.77"
*
         P360 =
                    2.29"
*
         P1440 =
                    2.59"
*
*
     HYDROLOGIC MODEL FOR SITE EXISTING CONDITIONS
*
     100-YEAR, 6-HOUR STORM
*
*
     REU1A7.DAT
*
     BY ISAACSON & ARFMAN PA - FRED ARFMAN, PE / SR
*
START
                 TIME=0.0 HR PUNCH CODE=0
LOCATION
                     RIO RANCHO
    City of Rio Rancho soil infiltration values (LAND FACTORS) used for computations.
    Land Treatment
                     Initial Abstr.(in)
                                        Unif. Infilt.(in/hour)
         Α
                     0.65
                                        1.67
         В
                     0.50
                                        1.25
         С
                     0.35
                                        0.83
         D
                     0.10
                                        0.04
RAINFALL
                 TYPE=1 RAIN QUARTER=1.06 RAIN ONE=1.77
                 RAIN SIX=2.29 RAIN DAY=2.59 DT=0.033333HR
             COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
             DT = 0.033333 HOURS
                                      END TIME =
                                                   5.999940 HOURS
              0.0000 0.0041 0.0084 0.0127 0.0171 0.0216 0.0262
              0.0309 0.0357 0.0406 0.0456 0.0508 0.0561 0.0615
              0.0671 0.0728 0.0787 0.0848 0.0911 0.0976 0.1042
              0.1112 0.1183 0.1258 0.1335 0.1416 0.1500 0.1588
              0.1680 0.1777 0.1879 0.1928 0.1981 0.2037 0.2157
              0.2426 0.2840 0.3434 0.4245 0.5311 0.6671 0.8363
              1.0428 1.2338 1.3138 1.3813 1.4413 1.4960 1.5463
              1.5930 1.6366 1.6775 1.7160 1.7523 1.7866 1.8191
```

1.8499 1.8790 1.9067 1.9330 1.9579 1.9644 1.9705 1.9764 1.9821 1.9876 1.9929 1.9981 2.0031 2.0079 2.0127 2.0173 2.0218 2.0262 2.0304 2.0346 2.0387 2.0428 2.0467 2.0506 2.0544 2.0581 2.0618 2.0654 2.0690 2.0725 2.0759 2.0793 2.0826 2.0859 2.0892 2.0924 2.0956 2.0987 2.1018 2.1048 2.1078 2.1108 2.1137 2.1167 2.1195 2.1224 2.1252 2.1280 2.1307 2.1335 2.1362 2.1388 2.1415 2.1441 2.1467 2.1493 2.1518 2.1544 2.1569 2.1594 2.1618 2.1643 2.1667 2.1691 2.1715 2.1738 2.1762 2.1785 2.1808 2.1831 2.1854 2.1877 2.1899 2.1921 2.1944 2.1966 2.1987 2.2009 2.2031 2.2052 2.2073 2.2095 2.2116 2.2136 2.2157 2.2178 2.2198 2.2219 2.2239 2.2259 2.2279 2.2299 2.2319 2.2338 2.2358 2.2377 2.2397 2.2416 2.2435 2.2454 2.2473 2.2492 2.2510 2.2529 2.2548 2.2566 2.2584 2.2603 2.2621 2.2639 2.2657 2.2675 2.2692 2.2710 2.2728 2.2745 2.2763 2.2780 2.2798 2.2815 2.2832 2.2849 2.2866 2.2883 2.2900

*S SOUTH BASIN, HISTORIC

COMPUTE NM HYD ID=1 HYD NO=10 AREA= 0.000657 SQ MI PER A=0 PER B=0 PER C=100 PER D=0 TP=-0.1333 HR MASS RAIN=-1

 K = 0.104739HR
 TP = 0.133300HR
 K/TP RATIO = 0.785737
 SHAPE CONSTANT, N = 4.569324

 UNIT PEAK = 1.9296
 CFS
 UNIT VOLUME = 0.9937
 B = 391.50
 P60 = 1.7700

 AREA = 0.000657
 SQ MI
 IA = 0.35000
 INCHES
 INF = 0.83000
 INCHES PER HOUR

 RUNOFF
 COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
 METHOD - DT = 0.033333

PRINT HYD ID=1 CODE=5

OUTFLOW HYDROGRAPH REACH 10.00

TIME	FLOW								
HRS	CFS								
0.000	0.0	0.667	0.0	1.333	0.2	2.000	0.1	2.667	0.0
0.167	0.0	0.833	0.0	1.500	1.2	2.167	0.1	2.833	0.0
0.333	0.0	1.000	0.0	1.667	0.6	2.333	0.0		
0.500	0.0	1.167	0.0	1.833	0.3	2.500	0.0		

RUNOFF VOLUME = 0.97796 INCHES = 0.0343 ACRE-FEET PEAK DISCHARGE RATE = 1.20 CFS AT 1.500 HOURS BASIN AREA = 0.0007 SO. MI. *S SOUTH BASIN, PROPOSED

COMPUTE NM HYD ID=2 HYD NO=11 AREA= 0.000657 SQ MI PER A=0 PER B=0 PER C=0 PER D=100 TP=-0.1333 HR MASS RAIN=-1

 K = 0.072649HR
 TP = 0.133300HR
 K/TP RATIO = 0.545000
 SHAPE CONSTANT, N = 7.106428

 UNIT PEAK = 2.5939
 CFS
 UNIT VOLUME = 0.9949
 B = 526.28
 P60 = 1.7700

 AREA = 0.000657 SQ MI
 IA = 0.10000 INCHES
 INF = 0.04000 INCHES PER HOUR

 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

PRINT HYD ID=2 CODE=5

OUTFLOW HYDROGRAPH REACH 11.00

TIME	FLOW								
HRS	CFS								
0.000	0.0	1.333	0.6	2.667	0.0	4.000	0.0	5.333	0.0
0.167	0.0	1.500	1.8	2.833	0.0	4.167	0.0	5.500	0.0
0.333	0.0	1.667	0.9	3.000	0.0	4.333	0.0	5.667	0.0
0.500	0.0	1.833	0.6	3.167	0.0	4.500	0.0	5.833	0.0
0.667	0.0	2.000	0.4	3.333	0.0	4.667	0.0	6.000	0.0
0.833	0.1	2.167	0.2	3.500	0.0	4.833	0.0	6.167	0.0
1.000	0.1	2.333	0.1	3.667	0.0	5.000	0.0	6.333	0.0
1.167	0.1	2.500	0.1	3.833	0.0	5.167	0.0	6.500	0.0

RUNOFF VOLUME =	2.03649	INCHES	=	0.0714 AC	RE-FEET		
PEAK DISCHARGE RATE	=	1.75 CFS	AT	1.500 HOURS	BASIN AREA =	0.0007 SC	2. MI

*S NORTH BASIN, HISTORIC COMPUTE NM HYD ID=3 HYD NO=103 AREA= 0.000774 SQ MI PER A=0 PER B=0 PER C=100 PER D=0 TP=-0.1333 HR MASS RAIN=-1

 K = 0.104739HR
 TP = 0.133300HR
 K/TP RATIO = 0.785737
 SHAPE CONSTANT, N = 4.569324

 UNIT PEAK = 2.2732
 CFS
 UNIT VOLUME = 0.9949
 B = 391.50
 P60 = 1.7700

 AREA = 0.000774 SQ MI
 IA = 0.35000 INCHES
 INF = 0.83000 INCHES PER HOUR

 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

PRINT HYD ID=3 CODE=5

PARTIAL HYDROGRAPH 103.00

| TIME | FLOW |
|------|------|------|------|------|------|------|------|------|------|
| HRS | CFS |

0.000	0.0	0.667	0.0	1.333	0.2	2.000	0.2	2.667	0.0
0.167	0.0	0.833	0.0	1.500	1.4	2.167	0.1	2.833	0.0
0.333	0.0	1.000	0.0	1.667	0.7	2.333	0.0	3.000	0.0
0.500	0.0	1.167	0.0	1.833	0.3	2.500	0.0		

RUNOFF VOLUME = 0.97796 INCHES = 0.0404 ACRE-FEET PEAK DISCHARGE RATE = 1.41 CFS AT 1.500 HOURS BASIN AREA = 0.0008 SQ. MI.

*S NORTH BASIN, PROPOSED COMPUTE NM HYD ID=4 HYD NO=104 AREA= 0.000774 SQ MI PER A=0 PER B=0 PER C=15 PER D=85

TP=-0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428 UNIT PEAK = 2.5974 CFS UNIT VOLUME = 0.9949 B = 526.28 P60 = 1.7700 AREA = 0.000658 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

K = 0.104739HR TP = 0.133300HR K/TP RATIO = 0.785737 SHAPE CONSTANT, N = 4.569324 UNIT PEAK = 0.34098 CFS UNIT VOLUME = 0.9635 B = 391.50 P60 = 1.7700 AREA = 0.000116 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

PRINT HYD ID=4 CODE=5

PARTIAL HYDROGRAPH 104.00

TIME	FLOW								
HRS	CFS								
0.000	0.0	1.333	0.6	2.667	0.0	4.000	0.0	5.333	0.0
0.167	0.0	1.500	2.0	2.833	0.0	4.167	0.0	5.500	0.0
0.333	0.0	1.667	1.0	3.000	0.0	4.333	0.0	5.667	0.0
0.500	0.0	1.833	0.6	3.167	0.0	4.500	0.0	5.833	0.0
0.667	0.0	2.000	0.5	3.333	0.0	4.667	0.0	6.000	0.0
0.833	0.1	2.167	0.2	3.500	0.0	4.833	0.0	6.167	0.0
1.000	0.1	2.333	0.1	3.667	0.0	5.000	0.0	6.333	0.0
1.167	0.1	2.500	0.1	3.833	0.0	5.167	0.0	6.500	0.0

RUNOFF VOLUME = 1.87771 INCHES = 0.0775 ACRE-FEET PEAK DISCHARGE RATE = 1.97 CFS AT 1.500 HOURS BASIN AREA = 0.0008 SQ. MI.

*S~-	~~~	~~~	$\sim \sim \sim$	~~~	~~~	$\sim \sim \sim \sim \sim$	~ PC)ND	~~~	$\sim \sim \sim$	$\sim \sim \sim \sim$	$\sim \sim \sim$	$\sim \sim \sim$	$\sim \sim \sim$	~~~	$\sim \sim$							
*S		18	" D	OME	DG	RATI	E																
*S						PI	PE 1	INV	ERT	=	17												
ROU	ΓE F	RESE	RVO	IR		ID	=20	ΗY	DN	0=1	120	IN	FLO	ωI	D=4	- CC	DE=2	24					
						00-	TFLC)W(CFS)		ST	ORA	GE (AC-	FT)		ELE	EVAT	ION	(FT)	
							0.0	90					0.0	100	67			2	17.0				
							1.9	90					0.0	128	19			2	17.2	5			
							3.5	50					0.0	141	95			2	17.32	75			
							5.7	0'			e	.02	107	4			18	8.0					
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							
		4		T N I										~	.	~							
				TIN	FLU	W	EL		- \		VUL			00	IFL	.Ow							
	(HF	(5)		(C	+5)		(F	EE	1)		(AC	- F I)	(C	+5)								
	0	00			9.9	A	1	7.	aa		P	. 01	Ø		0.	99							
	ø.	80			0.0	4	1	7.	00 00		e	. 01	ñ		0.	03							
	1	60			1.3	6	1	7.	20		e	. 01	2		1.	50							
	2	40			0.0	8	1	7.	01 01		e	. 01	0		<u>0</u> .	A9							
	3	20			0.0	2	1	7.	0 <u>-</u> 00		e	. 01	ñ		0.	02							
	4.	.00			0.0	2	1	7.	00		e	.01	0		0.	02							
	4.	80			0.0	2	1	7.	00		e	.01	0		0.	02							
	5.	60			0.0	2	1	.7.	00		e	.01	0		0.	02							
	6.	.40			0.0	0	1	7.	00		e	.01	0		0.	00							
PE	4K [DISC	HAR	GE	=		1	.9	31	CFS	5 -	PEA	КО	CCU	RS	AT	HOUI	R	1.5	53			
MAX	KIMU	JM W.	ATE	RS	URF	ACE	ELE	VA	тіо	N =	=		17	.25	2								
MAX	KIMU	JM S	TOR	AGE	=			0.	012	8 4	4C - F	Т		IN	CRE	MEN	ITAL	TIN	۹E=		0.0	3333	3HRS

PRINT HYD ID=20 CODE=1

PARTIAL HYDROGRAPH 120.00

RUNOFF VOLUME =1.87740 INCHES=0.0775 ACRE-FEETPEAK DISCHARGE RATE =1.93 CFS AT1.533 HOURSBASIN AREA =0.0008 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 15:13:12

STORMWATER QUALITY VOLUME REQUIRMENT

For redevelopment, the CABQ Stormwater Quality Volume (SWQV) is based on the 80th percentile storm event or 0.26 inches. The Stormwater Quality Required Volume for this property is calculated as 0.26in*(1ft/12in)*"Impervious Area".

			IMPERV.		
	AREA	PERC	AREA	80TH PERCENTILE	REQUIRED
BASIN	(SF)	D (%)	(SF)	STORM (IN)	VOLUME (CF)
SOUTH	18327	100	18327	0.26	397.09
NORTH	21567	85	18332	0.26	397.19

STORM WATER QUALITY VOLUME REQUIRED FOR REDEVELOPMENT

The North Basin SWQV of 397.19 CF will be collected in an on-site pond. Whereas the South Basin SWQV of 397.09 CF cannot be retained due to the required pavement extents and limited landscaping. Therefore a payment of \$8.00/CF will be made to COA Hydrology department in-lieu of the SWQV requirement. COA Hydrology will provide a treasury deposit slip. A copy of the paid receipt will be required prior to Hydrology approval for building permit.

		POND									
	Contour	Area	Volume								
SMOV	16.00	198									
30000	17.00	679	439	CF							
Freeboard	18.00	1157	918	CF							
	TOTAL VOI		1357	CF							

The proposed pond has an 18 inch Domed Grate that ties into the existing 10 inch diameter Storm Drain. This rim will be set at elevation 5017.00, so the provided SWQV is 439 CF, this is greater than the required volume of 397.19 from the North Basin.

The flowrate entering the domed grate (Q Out) was determined using the "Nyloplast 18" Dome Grate Inlet Capacity Chart". Whereas a 1ft head produces a Q-out of 5.7 cfs, the AHYMO calculations show that the grate will only see a peak discharge of 1.93 cfs and a max water surface elevation of 5017.3. The extra storage will provide capacity should the upstream inlet fail. The existing 10 inch diameter storm drain has enough capacity to accept the developed Tract E-A-2 runoff.



- PRIVATE IMPROVEMENTS WHERE APPLICABLE.
- CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE TO BE ENCOUNTERED.
- INFORMATIONAL PURPOSES. THE CONTRACTOR SHALL BE CORRECT.
- TO BE DONE
- OWNER, SHOWS THE LOCATION OF KNOWN SURFACE AND LOCATION.
- SHALL BE RESTORED AT HIS/HER EXPENSE
- PUBLIC WORK (SECOND PRIORITY.)
- UTILITIES.
- ENSURE THAT THE WASTE DISPOSAL SITE COMPLIES WITH GOVERNMENT REGULATIONS
- EARTHWORK QUANTITIES: THE CONTRACTOR SHALL BE TOP OF FINISH MATERIAL (I.E. TOP OF CONCRETE, TOP OF THICKNESSES.
- K. TRANSITION TO EXISTING: WHERE GRADES BETWEEN NEW AND SMOOTH.
- DEBRIS, AND OTHER ORGANIC MATERIAL.
- LAYOUT / STAKING.
- NOT TO REQUIRE AN eNOI, THE CONTRACTOR SHALL BE SHALL BE INCIDENTAL TO THE PROJECT COST.
- LANDSCAPING OR AN IMPERVIOUS SURFACE SHALL BE WITH SECTION 1012 OF THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, APWA NM CHAPTER, CURRENT EDITION.
- OR EROSION CONTROL PERMITS FROM THE REGULATORY AGENCIES.
- IN PAVED AREAS SHALL BE HS-25 TRAFFIC RATED.

CMU WALL BY OTHERS SUBJECT OF WALL 5018.5 TOP WALL 5018.5 TOP WATER PROOFING 50 WATER PROOFING TOP S.W. QUALITY VOLUM 5 1		
TOP WALL 5018.5 TOP WATER PROOFING 50 WATER PROOFING TOP S.W. QUALITY VOLUM 5 1 1 1	CMU WALL BY OTHERS	
	ALL BY UTHERS	TOP WALL 5018.5 TOP WATER PROOFING 501 WATER PROOFING TOP S.W. QUALITY VOLUME 5 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1

CIVIL NOTES

A. STANDARDS AND SPECIFICATIONS - THE CITY OF ALBUQUERQUE PUBLIC WORKS REGULATIONS SHALL TAKE PRECEDENT FOR ALL

SUBSURFACE INVESTIGATION: SUBSURFACE EXPLORATION TO ASCERTAIN THE NATURE OF SOILS IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE SUCH SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO DETERMINE THE NATURE OF THE MATERIAL

C. TOPOGRAPHIC SURVEY: TOPOGRAPHIC SURVEY INFORMATION SHOWN WAS PROVIDED BY THE OWNER AND IS INCLUDED FOR RESPONSIBLE FOR VERIFYING THAT THE INFORMATION SHOWN IS

COMPLIANCE WITH LAWS: THE CONTRACTOR SHALL FULLY COMPLY WITH ALL LOCAL, STATE AND FEDERAL LAWS, INCLUDING ALL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THE WORK

EXISTING STRUCTURES: THE SURVEY, PROVIDED BY THE PROPERTY SUBSURFACE STRUCTURES, HOWEVER, THE ENGINEER ASSUMES NO RESPONSIBILITY FOR FAILURE TO SHOW ANY OR ALL OF THESE STRUCTURES ON THE PLANS, OR TO SHOW THEM IN THEIR EXACT

PROTECTION OF EXISTING UTILITIES: NEW MEXICO ONE CALL (NM811 PHONE: 1-800-321-2537) SYSTEM MUST BE CONTACTED AT LEAST TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION OPERATIONS BEING PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT NM811 SYSTEM. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL EXISTING UTILITIES, SERVICES AND STRUCTURES ENCOUNTERED, WHETHER OR NOT THEY ARE INDICATED ON THE PLANS. ANY DAMAGE TO UTILITIES RESULTING FROM THE CONTRACTOR'S OPERATIONS

ALL SITE PREPARATION, GRADING OPERATIONS, FOUNDATION CONSTRUCTION, AND PAVEMENT INSTALLATION WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT IF ONE IS PROVIDED BY THE OWNER OR ARCHITECT. ALL OTHER WORK SHALL, UNLESS OTHERWISE NOTED IN THE PLANS, BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATION (FIRST PRIORITY), AND/OR NMDOT STANDARD SPECIFICATIONS FOR

VIBRATORY COMPACTION SHALL NOT BE USED OVER IN-PLACE

STRIPPING AND DEBRIS REMOVAL: ALL WASTE PRODUCTS FROM THE CONSTRUCTION SITE SHALL BE APPROPRIATELY DISPOSED OF OFF-SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN PERMITS REQUIRED TO HAUL OR DISPOSE OF WASTE PRODUCTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO

RESPONSIBLE FOR CALCULATING THE EARTHWORK QUANTITIES BASED ON THE EXISTING CONTOURS SHOWN ON THE SURVEY. PROPOSED SPOT AND CONTOUR ELEVATIONS SHOWN REPRESENT CONCRETE BUILDING PAD, TOP OF PAVEMENT MATERIAL, TOP OF LANDSCAPING MATERIAL, ETC.). CONTRACTOR SHALL GRADE,

COMPACT SUBGRADE AND DETERMINE EARTHWORK ESTIMATES BASED ON PROPOSED ELEVATIONS SHOWN MINUS FINISH MATERIA

EXISTING ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS SHALL BE

L. STRIPPING AND DEBRIS REMOVAL: THE BUILDING PAD SITES, AREAS TO BE PAVED. AND ALL AREAS THAT ARE TO RECEIVE FILL MATERIAL SHALL BE STRIPPED OF VEGETATION, TREES, ROOTS, STUMPS,

M. ELECTRONIC FILES: UPON WRITTEN REQUEST THE ELECTRONIC FILE OF THE GRADING AND DRAINAGE PLAN MAY BE PROVIDED TO THE CONTRACTOR FOR VERTICAL CONTROL. DO NOT USE GRADING & DRAINAGE PLAN FOR PROJECT STAKING NOR SITE CONSTRUCTION

N. EROSION AND SEDIMENT CONTROL: IF THE SITE IS SMALL ENOUGH RESPONSIBLE FOR USING EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PUBLIC RIGHT-OF-WAY. MEASURES REQUIRED FOR EROSION AND SEDIMENT CONTROL

O. ANY AREAS DISTURBED BY CONSTRUCTION AND NOT COVERED BY **RE-VEGETATED WITH NATIVE GRASS SEEDING IN ACCORDANCE**

THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST AND EROSION CONTROL REGULATIONS. THE CONTRACTOR SHALL PREPARE AND OBTAIN ANY NECESSARY DUST

Q. ADJUST ALL RIMS OR COVERS OF UTILITY FEATURES (EXISTING AND NEW) AS NECESSARY TO MATCH NEW GRADES. RIMS AND COVERS





PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE GRADING AND PAVING, RETAINING WALLS, FENCES, AND DRAINAGE FEATURES.

LEGAL DESCRIPTION: A PORTION OF TRACT 1A-1A OF MUELLER INDUSTRIAL SUBDIVISION

ADDRESS: 720 CANDELARIA ROAD N.E.

BENCHMARK: VERTICAL DATUM WAS BASED UPON ALBUQUERQUE CONTROL SURVEY MONUMENT 6-G15, HAVING A PUBLISHED ELEVATION OF 4978.42 (NAVD88).

OFF-SITE: MINOR EXISTING OFF-SITE RUNOFF WILL BE ACCEPTED AND CONTINUE THROUGH THE IMPROVED AREA.

FLOOD HAZARD: PER BERNALILLO COUNTY FIRM MAP #35001C0332G, THE SITE IS LOCATED WITHIN FLOODZONE 'X' DESIGNATED AS AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

DRAINAGE PLAN CONCEPT

UNDER EXISTING CONDITIONS RUNOFF FROM THE UNDEVELOPED PORTION OF THE NORTH PROPERTY COMBINES WITH RUNOFF FROM THE UNDEVELOPED PORTION OF THE SUBJECT PROPERTY AND FLOWS WESTWARD.

IT IS PROPOSED TO LET THE RUNOFF FROM THE UNDEVELOPED PORTION OF THE NORTH PROPERTY ENTER AN EXISTING STORM DRAIN. AND LET THE SUBJECT PROPERTY'S RUNOFF CONTINUE TO FLOW WESTWARD. SEE SUPPLEMENTAL INFORMATION.

KEYED NOTES

8'X30'X12" ANGULAR ROCK RUNDOWN PER EROSION PROTECTION DETAIL. FRACTURE FACE ROCK, AVERAGE 6" DIA. (3"-9" DIA. RANGE) OVER GEO-TEXTILE FILTER FABRIC MATCH EXISTING GRADE AT WEST EDGE.

PRO-PANEL FENCE SYSTEM. COORDINATE WITH FENCE CONTRACTOR FOR PLACEMENT OF FENCE POST: SUNNY FENCE

ATTN: LARRY TAFOYA (842-1303)

- BOTTOM OF PRO-PANEL (07.50) = 6" ABOVE TOP OF ASPHALT (07.00).
- REMOVE AND DISPOSE EXISTING CMU WALL. FOOTING TO REMAIN WHERE IT DOES NOT INTERFERE WITH ASPHALT SUBGRADE AT 6" DEPTH
- EXISTING CMU WALL (NORTH-SOUTH) TO REMAIN.
- BUILD CMU POND RETAING WALL (STRUCTURAL BY OTHERS) WATER PROOF INTERIOR SIDE OF WALL. TOP OF WALL 5018.50
- MATCH ASPHALT TO EXISTING MANHOLE RIM ELEVATION.
- EXPOSE EXISTING SAS MANOLE, RAISE TO FINAL ASPHALT GRADE.

LEGEND

EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

— — — — -4945— — - -494.3-

 $\oplus 65.4$

PROPOSED 1.0' CONTOUR PROPOSED SPOT ELEVATION FLOW DIRECTION PRO-PANEL FENCE • • • • • • • • • • • • •

STORMWATER QUALITY RETENTION POND

SHEET NUMBER

SHEET TITLE

GRADING

AND

DRAINAGE

PLAN

C-100

Engineer

 (\mathbf{T})

X O

ΟH

 $\Xi \times$

ZU

H

 $\overline{}$

Z

Road

ria

る

e

D

an

0

Ω B